College of Arts and Sciences
Department of Physics

Course Syllabus

3 Credit Hours
PHYS 120 Foundations of Astronomy

I. Course Description: This course is a one-semester introduction to astronomy without a required laboratory. Foundations of Astronomy is an introduction to astronomy; covering Earth-Sky relationships, an overview of the Solar System, the Sun, the stars, our Galaxy, other galaxies, the large-scale structure of the Universe, and cosmology. This course is intended for both physics and non-physics majors. Prerequisites: Admittance to the university.

II. Rationale: As an intellectual, one should have a better understanding of the universe than the ancient observers**.** Astronomy is the oldest physical science, and if you have ever wondered about the planets, the Sun, the fate of the Universe, black holes, or extraterrestrial life, for example, then you have been doing something that our ancestors have been doing for thousands of years. However, for the ancient observer the earth seemed vast and immobile – the center of the universe. Let us hope we fare far better. Thus, this course can benefit students in several ways. For the most part, you will realize that your experiences on Earth can help you understand *everything* in the Universe - from planets to stars to galaxies to the Universe itself. Astronomy is not something for a select few to understand.

III. Competencies On completion of this module, students should be able to:

A. Recall the basic definitions of point-set topology accurately
B. Write out proofs of the simpler theorems and propositions;
C. Apply their knowledge to examples of specific topological and metric spaces.

IV. Behavioral Objectives

The objectives of this course are:

1. to focus on human beings as part of a large-scale physical existence;
2. to identify our position and relative scale-size in the Universe;
3. to familiarize students with the astronomical objects studied by astronomers;
4. to familiarize students with the physical concepts and terms used in modern astronomy to gain an understanding of the physical nature of various bodies and phenomena; and,
5. to expose students to the practices, methodology, and the conceptual basis of a modern physical science, such as astronomy.

V. Course Content: Astronomy is just as broad as the night sky, the Milky Way and Andromeda Galaxies put together. There are so many topics and applications that it's not possible to put together a full semester for everything. Due to the constraints of time, there are a number of topics which we will not be able to discuss in detail. These omissions are made not because the subjects are of no interest to astronomers, but rather because we will not have time to discuss all of the interesting and important topics in astronomy. Possible covered topics are:

1. Ancient Astronomy
2. The Birth of Modern Astronomy (Copernican Revolution)
3. Slight and Matter/Telescopes
4. Time and the Calendar
5. The Sun, Giants, Dwarfs, and Main Sequence Stars
6. Interstellar Medium, Stellar Evolution, Neutron Stars, Black Holes
7. The Milky Way Galaxy
8. Galaxies and Dark Matter
9. Cosmology
10. Our Planetary System
11. Life in the Universe

VI. Learning Activities

Because learning requires active participation, and not just passive listening, we will be doing various activities in the classroom that involve student participation. These activities will help the student learns and give the instructor valuable feedback on how well the students have mastered the course material. Students will be involved in small/large group discussions and individual oral presentations of various topics. Students may be assigned library activities including research on topics related to the stated competencies. Learning activities include regular class lectures, regular homework, and surprise quizzes.

VII. Special Course Requirements

A. Regular and punctual class attendance is expected of each student. The student is responsible for understanding and adhering to course requirements and meeting scheduled deadlines.
B. Each student is expected to participate in the discussion of material from the textbook.
C. Each student is expected to complete the assignments individually. A student may be called upon to present the solution on an assignment to the class.

VIII. Evaluation Process

Methods

Students will be evaluated based on their performance in examinations (including comprehensive final examination), quizzes, homework, and class participation and activities.

Grading Scale:

HOMEWORK: During each class period, homework will be assigned and it is expected that each student will complete it as much as possible. If there are any questions, you can come and see me during my conference hours or make an appointment. First several minutes of lecture period will be utilized to answer questions regarding homework assignment.

QUIZZES: There will be no make up for quizzes. Quizzes can be given at any time during the class period and last approximately 5 minutes. Arriving at class promptly is important.

TESTING: There will be 3 major tests and a comprehensive mid-semester and final examination. All students are required to take every exam when scheduled.
No makeup will be given unless there is an emergency and/or arranged in advance. No more than one makeup per student will be allowed during the semester.

CLASS OBSERVATION AND PARTICIPATION OF STUDENT

A small percentage (5 %) of your grade will be bases on my observation of you as a student. That is; attendance, attitude, willingness to participate in class, and what I characterize as satisfactory progress. Attendance will be taken at the beginning of each class. The GSU attendance policy will be followed (refer to the GSU Catalog).

GRADING: Each Test will be 100 Points
The Mid-semester (comprehensive) and Final examinations (comprehensive) will be 200 points each. , Quizzes, homework and individual/group activities will constitute 100 points each.

At the end of the semester, the final grade will be determined based on the ratio of point awarded to that of total possible points, using the following scale:

90 -100 A, 80 - 89 B, 70 - 79 C, 60 - 69 D, 0 - 59 F

Cheating will not be tolerated in any form. As a minimum, students will be given a grade of zero for any quiz or exam in which cheating, fraud, or mis-representation is found.

IX. References

Chaisson and Mcmillan, Astronomy A beginner's Guide to the Universe, 5th edition, Prentice Hall, 2007.

George Abell, Exploration of the Universe, 3rd Edition, Saunders College Publishers, 1995.

ADA Assurance Statement

Grambling State University adheres to all applicable Federal, State and Local laws, regulations, and guidelines with respect to providing reasonable accommodations, for students with disabilities. Students with disabilities should register with the ADA student services coordinator and contact their instructor(s) in a timely manner to arrange for appropriate accommodations. If you need accommodations in this class related to a disability, please make an appointment as soon as possible.

CELL PHONES ARE TO REMAIN OFF DURING THE ENTIRE TIME OF CLASS